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Leveraging the Internet for Grocery Shopping: A Study of Factors Influencing the Indian Consumer

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ABSTRACT: This research identifies and analyses the factors that drive grocery shopping on the internet in India. The modified version of the technology adoption model is deployed along with consumer trust and subjective norms as additional factors. A quantitative study of Indian consumers with experience of internet usage was carried out to determine relationships between the identified factors. The questionnaire items were developed after study of robust and established scales in the area of online grocery as well as related Technology Acceptance Model studies. Structured equation modelling was done with confirmatory factor analysis and model fit evaluation. The important insight from this study is that attitude of consumer towards shopping groceries on the internet is key to use of internet grocery shopping. "Perceived Ease Of Use" (PEOU) and "Subjective Norms" (SN) do not influence the attitude of consumers towards Online Grocery Shopping. Having said that, "Perceived Ease of Use" (PEOU) has an indirect influence through "Perceived Usefulness" (PU) which in turn drives attitude positively. The paper discusses areas of future research and offers practical suggestions to managers.

Purpose: The objective of the study was to analyse the inter and intra relationships between various factors that influence the consumer in taking part in internet grocery purchases.

Methodology: A theoretical model was proposed and validated with the help of confirmatory factor analysis and with the help of structured equation model.

Originality/Value: This research study is one of the rare studies on internet grocery shopping in the Indian context. The conclusions from this research will be input for further research and reference tool for managers of online grocery shopping.

Keywords: Consumer Attitude, Consumer Behaviour, e-commerce, India, Internet Groceries, online grocery shopping.

I. INTRODUCTION

Estimated India retail market size by 2020 is about USD $1.3 Trillion making it one of the biggest in the world. The share of organized retail is about 7% currently which is very low and is expected to be about 10% by 2020 with a CAGR of 20-25%. About 15 million pop & mom stores operate in the non-organized sector currently in India [1]. Groceries consist of food and house-hold items that are used on a daily basis and require periodic replenishment. Groceries can be classified broadly into 3 types: (i) Branded products (Cosmetics, Toiletries, Biscuits & Snacks, cleaning products & household items), (ii) Dry commodities (Staples such as cereals, rice, wheat, flours, grains etc.) and (iii) Fresh products (Vegetables, Fruits, Meat, Diary, Bread etc.) The Internet Grocery market in India is estimated to be between $400 and $600 billion in 2019 and could grow to $700 billion by 2022 [2].

Internet grocery shopping can be defined as the usage of websites by consumers to make their grocery related purchases. This new method of shopping has several potential benefits such as convenience, home delivery, time savings, avoid queues at offline stores etc. From the perspective of grocery business operators, there is efficiency in use of people, cost reduction and optimization of logistics among many other benefits [3, 4].

Internet grocery shopping started first in USA in late eighties and was rapidly adopted across the globe, primarily in European countries [5]. India witnessed the introduction of online grocery shopping during 2008-2011 and is witnessing a flurry of investments currently in the space by all major ecommerce players. At this point of time, there are very few research studies that have been carried out in the area of factors that influence the adoption of Internet grocery shopping in India.

The objective of this research study is to comprehend the Indian customer perception of Internet grocery shopping to arrive at various factors that are impacting the adoption of online grocery shopping in India. A survey was conducted among Indian Consumers who have experience of using the Internet. The ubiquitous "Technology Acceptance Model (TAM) is the theoretical basis of this research study.

The results of the research study indicate partial applicability of the "Technology Acceptance Model" (TAM) in identifying the factors impacting the adoption of Internet grocery shopping in India. The study indicates that Consumer attitude towards Internet grocery shopping is the most critical factor that determines the consumers' "Behavioural Intention" (BI) to carry out Internet grocery shopping. Trust in Internet grocery shopping as well as its "Perceived Usefulness" (PU) results in a positive attitude of consumer towards Internet grocery shopping. Also, as indicated by the "Technology Acceptance Model" (TAM), "Perceived Ease Of Use" (PEOU) positively impacts the perceived usefulness of online grocery shopping. The critical

insight incongruent to TAM is the absence of direct relationship between PEOU on the attitude towards Internet shopping in India.

The current research study can contribute to the existing research literature pertaining to adoption of ecommerce and specifically in the domain of B2B (business to consumer) applications in India. In terms of utility, the findings and conclusions can be looked at by online grocery retailers operating in India to focus and fine-tune an appropriate business strategy to get more customers to take part in Internet grocery shopping.

II. MATERIALS AND METHODS

Benefits of convenience and time savings have accrued to consumers thanks to ecommerce [6]. Online grocery shopping is adopted by consumers due to several reasons such as situational factors [7, 8], and convenience along with time savings [3]. Based on the in-depth study and review of various models/frameworks that seek to explain acceptance of technology, online consumer behaviour, online grocery shopping and other important variables, it is clear that several of them have their origin in TAM [9].

A. The Technology Acceptance Model

The "Technology Acceptance Model" (TAM) is one of the widely accepted model to comprehend the acceptance and use of technology. This is because of its strong theoretical basis backed by empirical data [10]. "Perceived Ease Of Use" (PEOU) has a positive effect on "Perceived Usefulness" (PU) which in turn has a positive effect on "Behavioural Intention" (BI) towards online grocery shopping. TAM was consequently applied to several areas and evolved over time. Further versions based on the original model, namely TAM2, TAM3, extended TAM for ecommerce, and integrated model of technology acceptance [11] have been widely applied. The extended TAM for online shopping looks at impact of "PU", "PEOU", consumer attitude and other aspects on consumer online shopping behaviour. The model establishes that attitude is directly correlated with intention/behaviour. TAM is relevant to study the relationships between various constructs in the Internet grocery shopping domain [13]. TAM lends itself to be applied to various user contexts and analysis of consumer behaviour due to its ability to predict and being parsimonious by nature. TAM has been used as a theoretical foundation by [13] to study the consumer characteristics that drive online shopping. The conclusions of the study were that PU and PEOU have a positive correlations between all consumer characteristics and their decision to adopt ecommerce.

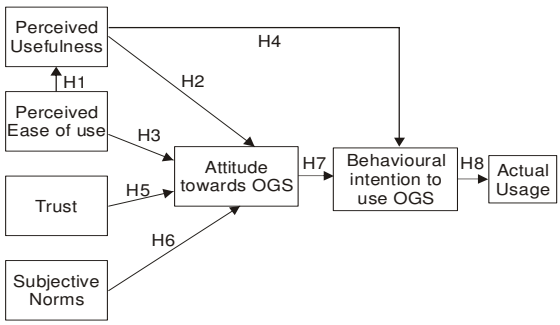

Fig. 1. The Online Grocery Adoption Model.

The TAM model proposes that PU & PEOU jointly establish the user's attitude on technology. User attitude in turn has a direct effect on consumer "Behavioural Intention" (BI) [14].

B. PU and PEOU

The original definition of PU as proposed by [9] was the extent of belief in an information system by a user that will improve his/her work performance. This can be interpreted as the belief of Internet grocery users in the internet to be useful in their everyday life for grocery purchase for the purpose of this study. Similarly "PEOU" was defined originally as the extent to which a user believes in a system that is free of effort. In our case, this would translate to the online consumer's belief that online grocery shopping is easy. "PEOU" has a causal effect on "PU" as established by various studies. [15, 16] established that, two information systems being able to deliver similar benefits, the one that is easy to use is looked at as being more useful, thereby establishing the potential direct impact of "PEOU" on "PU". The importance of "PU" and "PEOU" changes based on the stage of technology adoption [14]. This is in line with [9] observation that effect of "PEOU" decreases over time as users become familiar with the technology. Also the effect of PU on attitude and behaviour changes depending on the experience stage of the users. While early users are focused on PEOU, experienced users focus on PU [17]. It has also been studied that the influence of PU on "Behaviour Intention" (BI) is either constant or enhanced over time while effect of PEOU on intention reduces as the user becomes comfortable with the new technology [16].

Several studies across various technology adoptions context conclude that PU is an important antecedent. Social Networking Sites [18]; Word-processing software [14]. PEOU is a strong predictor of online shopping adoption as per a study [19]. PU as well as PEOU jointly influence consumer attitude towards usage of a virtual store and attitude in turn drives behavioural intention [20-23] also have empirically established that "PU" & "PEOU" have a significant and positive effect on consumer attitude. PU and PEOU are significant predictors of consumer attitude towards internet shopping [24]. Studies have established that "PU" is a significant predictor of consumer attitudes that influence the acceptance of online shopping by consumers [25]. Similar observation where PU of OGS is effected by PEOU of OGS was demonstrated by [26] along with all the other constructs of TAM.

H1: There is a positive influence of PEOU on PU towards online grocery shopping.

H2: There is a positive influence of PU on attitude towards online grocery shopping.

H3: There is a positive influence of PEOU on attitude towards online grocery shopping.

H4: There is a positive influence of PU on behavioural intention to use online grocery shopping.

C. Trust in online grocery shopping

Trust is defined [27] as, "the willingness of an entity to be vulnerable to the actions of another entity based on the expectation that the other will perform a particular action important to the trust or, irrespective of the ability to monitor or control that other party" (p.712). Consumers buy products and services depending on their level of trust in product or services, and sellers either in the offline or online stores. Trust on Internet is the basic and core aspect of building a relationship with consumers. Several studies establish that trust on Internet is less than the face-to-face interactions in the offline store [28].

One of the important aspects that has an influence on the success of a retailer selling groceries is the trust of consumer in the retailer. In the offline environment the customer is able to experience the product physically through touch, smell and sight. One of the pivotal aspects in Internet shopping consumer behaviour is trust and how it impacts behavioural intention [29]. When it comes to online grocery shopping all these factors are missing and the consumer has implicit trust in the online vendor. Consumer trust in Online Shopping is a major determinant of his/her attitude towards Internet grocery shopping. Lack of trust is a key reason for under penetration of online shopping. There are several aspects of trust that have a lasting impact on internet shopping such as trustworthiness of the vendor, trust worthiness of internet as a facilitator of transactions, trust related to infrastructure such as security, fraud detection, third-party certifications and various factors such as consumer demographics, vendor size etc. [30]. Trust should be looked at under very situational and specific context [31]. With respect to online shopping, there are risks in terms of outcome of Internet shopping and this result depends on the external variable such as internet vendor. In addition the net loss might outweigh the expected or experienced benefits. While trust in the vendor is necessary but it is not a sufficient condition for carrying out online shopping. This is because the role of internet infrastructure is key and the consumer has to trust the same as well [32].

H5: There is a positive influence of Trust on attitude towards online grocery shopping

D. Subjective Norm

Subjective Norm (SI) is the pressure exerted by friends, family, co-workers, and acquaintances on an individual to behave/not behave in a certain manner. “Subjective Norm” has been adapted from “Theory of Reasoned Action” (TRA) [33] which states that an individual’s “Behavioural Intention” (BI) to carry out a behaviour is based on the social pressure of the individual. This factor is important as consumers might act in a certain behaviour even if they personally do not want to undertake that behaviour owing to social influence. If they perceive that this behaviour is important to one of their influencers/social circle. Having said that some studies did not establish the impact of “Subjective Norms” (SN) on “Behavioural Intention” (BI) as opposed to others [17] who established that “Subjective Norm” (SN) has a direct impact on “Behavioural Intention” (BI). Others found that subjective norm has a greater effect in mandatory situations as against in voluntary situations [34]. In other words, if the consumer perceives that non-compliance to social norms results in negative effect, he/she might comply with the behaviour. Any new phenomenon adoption takes place through diffusion and is typically led by a small group of consumers. The rest of the population follows the early adopters [35]. The relevancy and cultural practice dimension was validated by for Internet grocery shopping [36].

H6: There is a positive influence of Subjective Norm on attitude towards online grocery shopping

E. Consumer Attitude towards online grocery shopping

Attitude can be defined as the specific mental state that individuals depend upon in order to perceive their surrounding environment in a structured manner and use the same to determine how to respond to it [37]. Attitude is defined as individual’s acquired predisposition to react positively or negatively to a given situation that needs to be addressed [38]. Given a technology adoption context, attitude is defined as an individual’s reaction towards acceptance or rejection of a specific system or innovation or technology [39]. An individual’s predisposition towards evaluation of a situation, product, service, idea, item, other attitude, concept, people or any aspect of his/her world that is potentially favourable or unfavourable is termed as consumer attitude [40]. Attitudes are also defined as latent, hypothetical aspects that lend to interpretation only from external and observable cues [33].

Attitudes are generally based on an individual’s past personal experiences. The personal background and environment greatly determines the nature, quality and number of these experiences and information. Again, there is large variance in the dimensions and characteristics of attitudes. The dimensions and characteristics of attitudes tend to be influenced by likes and dislikes of individuals, opposition and extremity of attitudes. The role of self-confidence is also important as individuals low on confidence tend to seek confirmation of their decisions.

The nature of attitude i.e. if based on perceived utilitarian or hedonistic qualities, influences the stability of the individual’s attitude. While utilitarian aspects refer to an object’s role in addressing our practical needs, hedonistic aspects largely address our feelings. Attitudes tend to be dynamic in nature and evolves/changes over time based on the individual’s experience. While attitudes tend to be reasonable predictors of behaviour, their dynamic nature moderates their effect. Attitudes that are shaped by deeply personal experiences tend to last longer as opposed to those derived from interaction with secondary sources.

The dependency relationship between the attitude and behaviour is affected by the time gap over the measurement and actual behaviour. Also, social norms tend to override personal attitudes in certain cases [41].

The intention to adopt information system by an individual is dependent on his/her attitude towards the usage behaviour of the system. This attitude tends to act as an intermediary between consumer perception of information system and the user behaviour with respect to the same [9]. Various researchers have suggested strong relationship between attitude and online shopping with role of attitude prior to committing to a purchase is vital.

H7: There is a positive influence of Attitude to Behavioural Intention towards online grocery shopping

F. Behavioural Intention

Reviewing the original TAM, one of the main conclusions is that “Behavioural Intention” (BI) to use a system is highly correlated to the actual usage of the same [9]. In a study of intranet usage with the help of TAM, a positive correlation ship was identified between “Behavioural Intention” (BI) and actual usage [42]. In a literature review study to validate the TAM's ability to predict actual usage, [43] after reviewing 73 articles and identifying 79 studies have concluded that “Behavioural Intention” (BI) is likely to be positively correlated with actual adoption. It is important to mention that the original model measured the intention to adopt as opposed to actual measurement of usage behaviour.

H8: There is a positive influence of Behavioural Intention towards online grocery shopping with the actual usage of online grocery shopping.

III. RESEARCH METHODOLOGY

A structured and close-ended questionnaire was deployed for collecting primary data from the sample. A 5 point "Likert scale" was used for majority of the questions. The scale consisted of five choices ranging from "strongly agree" ="5", "agree" = "4", "neutral" = "3", "disagree" ="2" and "strongly disagree" = "1". Scale reliability was established by calculating Cronbach's alpha which essentially determines the closeness of a set of items as a group. Our analysis of survey data resulted in a Cronbach's alpha of 0.952 that is well within the acceptable range. Non-probability convenience sampling was used to identify the respondents. This sampling encompasses respondents who agree to participated in the research study and readily available. The sample size for the current study comprised of 225 respondents with experience of online shopping in India. Submissions with incomplete responses and unclear data were excluded from the final tally. For the purpose of analysing the data, the final sample was 206.

IV. RESULTS AND DISCUSSION

A. Reliability and Validity

Reliability of a research instrument is established with the help of Cronbach's Alpha ratio. A Cronbach Alpha value of 0.7 or above is acceptable.

B. Demographic Profile of sample

Majority of the respondents are Male (61.2%) and from large cities of NCR, Bangalore, Chennai, Hyderabad and Mumbai. Majority (40%) of respondents belong to Hyderabad. Overall the sample is urban in characteristic. An overwhelming majority (81%) of the sample population is married and of these, equal proportion of family with children (43.7%) and without children (40.3) have taken part in our study. The age group of the sample consisted of respondents from 21 upwards with 44.2% of them above the age of 40 years and 40.3% were between 31 and 40 years. Close to three-fourths (73.3%) of respondents were post-graduates and the remaining were graduates (26.2%) indicating a highly educated respondent profile.

Table 1: Reliability Statistics of measurement items.

Factor Name	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
Attitude towards online grocery shopping	0.918	0.918	3
Perceived ease of use	0.896	0.897	3
Perceived usefulness	0.881	0.883	4
Subjective norms	0.817	0.816	3
Behavioural intention	0.852	0.853	3
Trust in online grocery shopping	0.738	0.754	3
Overall	0.943	0.944	19

Table 2: Descriptive Statistics of Demographics.

Variable		Frequency	Percent	Cumulative Percent
Gender	Female	80	38.8	38.8
	Male	126	61.2	100.0
	Total	206	100.0	
Location	Bangalore	34	16.5	16.5
	Chennai	30	14.6	31.1
	Hyderabad	83	40.3	71.4
	Mumbai	28	13.6	85.0
	NCR	31	15.0	100.0
	Total	206	100.0	
Marital Status	Single	33	16.0	16.0
	Married	83	40.3	56.3
	Married with children	90	43.7	100.0
	Total	206	100.0	
Age	21-30 Years	32	15.5	15.5
	31-40 Years	83	40.3	55.8
	Above 40 Years	91	44.2	100.0
	Total	206	100.0	
Education	Senior secondary school	1	.5	0.5
	Graduation	54	26.2	26.7
	Post-Graduation	151	73.3	100.0
	Total	206	100.0	
Monthly Income	Prefer not to disclose	44	21.4	21.4
	Less than 10,000	7	3.4	24.8
	Between 10,000 - 25,000	15	7.3	32.0
	Between 25,000 - 50,000	22	10.7	42.7
	Greater than 50,000	118	57.3	100.0
	Total	206	100.0	

In terms of monthly income, more than half of them have reported greater than INR 50,000 (57.3%) with close to 21.4% preferring not to share their income levels for the purpose of this study.

C. Exploratory Factor Analysis

Factor analysis refers to a set of statistical procedures that are primarily used for dimension reduction and summary. It can also be construed as orderly reduction

of inter-related dimensions. We take the help of Barttlet test of sphericity that takes the determinant of the correlation matrix into consideration. Another required condition that needs to be fulfilled is the Kaiser-Meyer-Olkin (KMO) statistic to be greater than 0.5. KMO statistic essentially looks at the magnitude of observed correlation coefficients with those of partial correlation coefficients.

D. Factor Reduction

The total number of initial factors were 23 and the following items were dropped due to low factor loading. PEOU1, PU1, PU5 and SN1. The final list of factors came down to 19 in total. The table below gives the details of factors identified along with their measurement items.

Table 3: KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.922**
Bartlett's Test of Sphericity	Approx. Chi-Square	3027.610
	df	171
	Sig.	0.000

The above KMO and Bartlett's test indicates that our respondent sample is adequate for carrying out factor analysis.

Table 4: Factor loadings.

Factor Name	Item Code	Item	Factor Loading
Attitude	ATT2	Purchasing groceries online is/might be pleasant	0.777
	ATT1	Purchasing groceries online is a good idea	0.766
	ATT3	Purchasing groceries online is/might be beneficial to me	0.721
Perceived ease of use	PEOU3	It is/might be easy for me to understand all the steps involved in online grocery shopping	0.858
	PEOU4	It is/might be easy to follow all the steps involved in online grocery shopping	0.805
	PEOU2	It is/might be easy to become expert at online grocery shopping	0.773
Perceived usefulness	PU6	Using online grocery shopping is convenient	0.801
	PU2	Using online grocery shopping can save me a lot of time	0.723
	PU4	Using online grocery shopping can make my grocery shopping easier	0.690
	PU3	Using online grocery shopping can improve my effectiveness in purchasing groceries	0.611
Subjective Norms	SN3	I will use online grocery shopping if it is used by my friends/colleagues at work	0.913
	SN4	I will use online grocery shopping if it is used by my neighbours / community members	0.910
	SN2	Most of my friends and acquaintances think that online grocery shopping is a good idea	0.445
Behavioural intention	BI3	I intend to use online grocery shopping if I get groceries at lower price	0.827
	BI2	I intend to use online grocery shopping when there is free delivery	0.820
	BI1	I intend to use online grocery shopping to purchase groceries	0.663
Trust in online grocery shopping	T1*	Online grocery shopping cannot be trusted as there are several uncertainties involved	0.976
	T3	Online grocery shopping can be trusted to deliver products on time	0.827
	T2	Online grocery shopping can be trusted to deliver good quality products	0.534

* Appropriate recoding of the scale has been done as the question wording is opposite by design.

E. Structural Equation Modelling

The Measurement Model: CFA

The variables included in the CFA measurement model include variables that were examined through exploratory factor analysis as well as reliability tests. To assess the model fit, it is imperative to report model fit indices [44].

Table 5: Fit Indices of measurement model.

Fit Index	Acceptable Values	Test Value
Chi-square/df	<3	2.083
GFI	>0.9	0.977
AGFI	>0.9	0.925
CFI	>0.90	0.948
RMSEA	<0.08	0.073

Discriminant and convergent validity: Validity can be looked as the degree to which a statistical test measures what it claims to be measuring. More specifically it is the extent of observed differences in measured scale with respect to actual differences among the respondents as opposed to random/ systematic error. The most commonly accepted measures of validity are convergent & discriminant validity. These measures were checked with the help of calculation of "construct reliability" (CR), "Average variance extracted" (AVE) and "Maximum Shared Variance". [45]. Few checks have been suggested as follows for arriving at convergent and discriminant validity. (1) Square root of AVE is greater than absolute value of the correlations with another factor. (2) AVE should be greater than MSV. (3) CR > 0.7 4. AVE > 0.5.

Table 6: Discriminant and convergent validity.

	CR	AVE	MSV	BI	Attitude	Subjective Norm	PEOU	PU	Trust
BI	0.921	0.797	0.792	**0.893**					
Attitude	0.901	0.901	0.792	0.890	**0.949**				
Subjective Norm	0.849	0.664	0.640	0.554	0.819	**0.815**			
PEOU	0.900	0.750	0.640	0.631	0.743	0.800	**0.865**		
PU	0.891	0.672	0.672	0.790	0.820	0.385	0.731	**0.82**	
Trust	0.851	0.659	0.656	0.690	0.810	0.580	0.680	0.733	**0.811**

The Structural Model: Fit Indices.

Table 7: Fit Indices of measurement model.

Fit Index	Acceptable Values	Test Value
Chi-square/df	<3	2.275
GFI	>0.9	0.958
AGFI	>0.9	0.907
CFI	>0.90	0.935
RMSEA	<0.08	0.079

The Path Analysis: Using the maximum likelihood estimation option in SPSS AMOS 21 software, path estimation was carried out. MLE (maximum likelihood estimation) method is logically tolerant of normality violations that are prevalent in psycho-attitude-behavioural studies. The method is also robust. The idea of path analysis is to specify predicting sequencing of variables. It also tests the theoretical model for consistency with the acquired/observed data points from the sample and estimates the magnitude of the hypothesized impact of variables in the theoretical model.

The accepted method is to review the CR (critical ratio) which is essentially the regression weights estimate divided by the standard error. This is evaluated against the p value to keep in mind the significance.

Table 8: Path Analysis and Regression Weights.

Path	Standardized Regression Weights	p-value	Critical Ratio	Result/Interpretation
PU ☮Attitude	0.574	<0.001	6.572	Supported
PEOU ☮Attitude	0.025	0.846	0.195	Unsupported
PU ☮Behavioural Intention	.082	0.360	0.915	Unsupported
Attitude ☮Behavioural Intention	0.867	<0.01	7.259	Supported
Behavioural Intention ☮Usage	0.531	<0.01	6.853	Supported
PEOU ☮PU	0.790	<0.01	9.872	Supported
Trust ☮Attitude	0.366	0.020	2.329	Supported
Subjective Norms ☮Attitude	0.064	0.280	1.081	Unsupported

V. CONCLUSION

Customers with the belief that online grocery shopping is useful tend to develop a positive attitude towards Internet grocery shopping. The relationship across PU and Attitude is significant with the CR being 6.572 and a p-value of less than 0.01. As per our analysis there is a significant and positive relationship across these two variables. This is also supported by the original TAM and others [9, 26]. The relationship across PEOU and Attitude is insignificant with p-value of 0.846 (> 0.05). As per our study there is no significant relationship between these two variables. Attitude towards Internet grocery shopping is not influenced by consumers who perceived that it is easy to use Internet grocery shopping. The relationship across PU and BI is insignificant with p-value of 0.360 (> 0.05). As per our study there is no significant relationship between these two variables. Consumers who think that online grocery shopping is useful do not necessarily engage in shopping. The key insight from this study is the role of customer attitude and behavioural intention. Our analysis shows that the Critical Ratio is 7.259 with a p value < 0.001 indicating strong positive correlation between attitude and behavioural intention. This conclusion is in congruence with the original TAM and several other studies [45] there is a high probability that consumers with behavioural intention are likely to actually use online grocery shopping. The data analysis shows that the Critical Ratio is 6.853 with a p value of less than 0.001 indication strong positive correlation between BI and actual usage. The data analysis shows that the Critical Ratio is 9.872 with a p value of less than 0.001 indication strong positive correlation between PEOU and PU. Consumers who think that online grocery shopping is easy to use are likely to believe that online grocery shopping is easy to use. Similar results have been confirmed in a study conducted by others in the context of Internet grocery shopping [26]. The additional construct of "Trust" introduced in this study has a significant positive correlation with attitude. The data analysis for trust and attitude shows that the Critical Ratio is 2.329 with a p value of 0.02 (Less than 0.05) indicating positive correlation between these two variables. Surprisingly, what people around the consumer think and do, does not seem to influence the consumer attitude towards Internet grocery shopping. Subjective Norms and Attitude do not exhibit any significant relationship with the p value of 0.280 (More than 0.05) indicating no correlation ship between these two variables.

A. Theoretical Implications of the study

The research model put forward in this research study aids in understanding of the relationship between latent variables and actual usage with respect to Internet grocery shopping in India. Some of the contributions of the model are as below

As the construct reliability and validity was established for the chosen factors, the research instrument is valid and acceptable. The proposed theoretical model was considered good fit thereby indicating acceptance of the theoretical mode. Applicability of the "Technology Acceptance Model" (TAM) in the Indian context for this category has been tested. Further studies are required for assessment of applicability of the same across several relevant variables. There are very few research studies on online grocery shopping and most of them are processual in nature. Factor research are too few and this study is one of them to check the validity of TAM with modifications in this product/service category. The single most critical factor driving usage is attitude towards Internet grocery shopping. "Perceived Ease Of Use" (PEOU) and "Subjective Norms" (SN) do not influence attitude towards OGS. Having said that, PEOU does influence indirectly through PU which in turn drives attitude positively.

The conclusions from this study has established the relevance and applicability of the "Technology Acceptance Model" (TAM) in evaluating the factors impacting the adoption of Internet Grocery Shopping in India. Attitude towards online grocery shopping has emerged as the critical factor in driving actual usage. Further these constructs do positively influence the consumer Attitude towards using Internet Grocery Shopping and this consumer attitude, in turn, positively drives the "Behavioural Intention" (BI) and the actual usage of Internet grocery shopping. Also, the study is expected to add value to the existing literature on the e-commerce enabled technology adoption that relies on the TAM, which is at the moment limited [15]. It is also established that "Subjective Norms" (SN) and "Perceived Ease Of Use" (PEOU) have no bearing on the attitude towards Internet grocery shopping. Similarly, "Perceived Usefulness" (PU) has no impact on the "Behavioural Intention" (BI) to adopt on-line grocery

shopping. Non-contribution of PU on BI and PEOU on Attitude is incongruent to the accepted TAM model and needs further investigation.

B. Managerial Implications

The online grocery market of India is estimated at $1.2 Billion which is about 0.2 % of the total grocery market. [46] This indicates that there is a long road ahead for the sector. There has already been a boom and bust in this sector over the last five years. We are currently in the midst of a boom cycle with massive investments from foreign venture capitalists. As the market is in the nascent stage, the category is very fluid and being formed. The customer is being exposed to rapid changes in this sector and consumer attitudes are being influenced by marketing efforts of major players. The most critical success factor for adoption of online grocery shopping is the consumer attitude towards online grocery shopping. The study points to the areas of focus as well as areas that give us an opportunity for optimization. The three factors that are impacting the consumer attitude towards Internet grocery shopping are "Perceived Ease Of Use" (indirectly), Trust and "Perceived Usefulness" (PU). Analysis of the path diagram indicate that "Perceived Ease Of Use" (PEOU) influences the "Perceived Usefulness" (PU) of Internet grocery shopping.

C. Limitations of the study

While the theoretical model is validated, the research study is not without limitations. Some of the areas that future researchers can keep in mind while addressing this topic are:

The sample for the study is largely restricted to the top metros in India due to constraints of time and cost. To address any discrepancies owing to this, future studies can take this factor into account and plan accordingly. The study is based on the widely accepted "Technology Acceptance Model" (TAM) but yet to be validated for applicability in the Indian context for the grocery category. This is due to fewer studies in this area in the Indian context. Further studies on TAM and its applicability will help researchers and managers leverage the larger insights of TAM. Due to the sparse research in this upcoming area, the study has been limited to overarching/ generic aspects that are influencing online grocery shopping in India. While helpful in establishing the key dimensions, design of very specific studies will be helpful in providing measurable and actionable insights for managers.

VI. FUTURE SCOPE

Further research could be carried out on the survey data to discover differences in perception of Internet Grocery Shopping by consumers with experience of online shopping across various categories to better comprehend the issue. Also, additional research studies could be carried out by interviewing some grocery consumers depending on their usage of online shopping as well as experience of internet shopping in general. Few of these ideas have the potential to embellish the findings of this research study. In conclusion, additional studies are needed to evaluate the applicability of the "TAM" in various contexts within the B2C (Business to consumer) electronic commerce situation in the Indian context. Due to the paucity of such studies, the assessment of the use of TAM to figure out B2C ecommerce in India is difficult. Instances of technology enabled ecommerce B2B studies, [47, 48] need to be complement with both the processual approach the factor approach. Some of the specific areas that need to be looked based on the insights from the current study are:

– Explore consumer dimensions of Trust and PEOU to identify specific levers to drive online grocery adoption

– An opportunity exists to map out the customer lifecycle journey in order to evaluate if the transition from other categories to grocery reduces the burden of managers.

– Apart from the factors that need to be taken care, as per our study, the impact of subjective norms on attitude is non-existent. This can be kept in mind when formulating marketing communication thereby enabling beneficial trade-offs.

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REFERENCES

[1]. IBEF. (2019). India E-Commerce Industry Report.

[2]. Wharton (2018). Retrieved from https://knowledge.wharton.upenn.edu/article/indias-online-grocery-battle-heating.

[3]. Morganosky, M. A., & Cude, B. J. (2000). Consumer response to online grocery shopping. *International Journal of Retail & Distribution Management*.

[4]. Slonae, K. (2000). The Online Shopping Revolution,http://aca.ninemsn.com.au/stories/454.asp, 2001.

[5]. Belsie, L. (1998). A Mouse in the Bakery Aisle? The Christian Science Monitor, http://www.csmonitor.com, last accessed July 2001.

[6]. Park, K., Perosio, D., German, G. A., & McLaughlin, E. W. (1996). *What's in store for home shopping?* (No. 639-2016-41605).

[7]. Hand, C., Dall'Olmo Riley, F., Harris, P., Singh, J., & Rettie, R. (2009). Online grocery shopping: the influence of situational factors. *European Journal of Marketing*, *43*(9/10), 1205-1219.

[8]. Robinson, H., Dall'Olmo Riley, F., Rettie, R., & Rolls-Willson, G. (2007). The role of situational variables in online grocery shopping in the UK. *The Marketing Review*, *7*(1), 89-106.

[9]. Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *Management Information Systems Research Center*, *13*(3), 319-340. https://doi.org/10.2307/249008

[10]. Saga, V.L. and Zmud, R.W. (1994) The Nature and Determinants of it Acceptance, Routinizatoin and Infusion, IFIP Transaction: *Computer Science and Technology*, *45*, 67-86.

[11]. Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, *39*(2), 273-315.

[12]. Bauerová, R., & Klepek, M. (2018). Technology acceptance as a determinant of online grocery shopping adoption. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis.

[13]. O'cass, A., & Fenech, T. (2003). Web retailing adoption: exploring the nature of internet users Web retailing behaviour. *Journal of Retailing and Consumer services*, *10*(2), 81-94.

[14]. Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *J. Appl. Social. Psychol*, *22*(14), 1111-1132.

[15]. Gefen, D., & Straub, D. W. (2000). The relative importance of perceived ease of use in IS adoption: A study of e-commerce adoption. *Journal of the association for Information Systems*, *1*(1), 8.

[16]. Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four

Longitudinal Field Studies. *Management Science*, *46*(2), 186-204.
[17]. Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, *6*, 144-176.
[18]. Sledgianowski, D., & Kulviwat, S. (2009). Using social network sites: The effects of playfulness, critical mass and trust in a hedonic context. *Journal of Computer Information Systems*, *49*(4), 74-83.
[19]. Pavlou, P. A, & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behaviour. *MIS Quarterly*, *30*(1), 115-143.
[20]. Chen, L. D., & Tan, J. (2004). Technology Adaptation in E-commerce: Key Determinants of Virtual Stores Acceptance. *European Management Journal*, *22*(1), 74-86.
[21]. Doherty, N. F., Ellis-Chadwick, F., McKechnie, S., Winklhofer, H., & Ennew, C. (2006). Applying the technology acceptance model to the online retailing of financial services. *International Journal of Retail & Distribution Management*, 1-35.
[22]. Lim, W. M., & Ting, D. H. (2012). E-shopping: an Analysis of the Technology Acceptance Model. *Modern Applied Science*, *6*(4), 49.
[23]. Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & management, 40*(3), 191-204.
[24]. Vijayasarathy, L. R. (2004). Predicting consumer intentions to use on-line shopping: The case for an augmented technology acceptance model. *Information and Management, 41*(6), 747-762.
[25]. Ha, S., & Stoel, L. (2012). Online apparel retailing: roles of e-shopping quality and experiential e-shopping motives. *Journal of Service Management, 23*(2), 197-215.
[26]. Kurnia, S., & Chien, A. J. (2003a). e-Transformation The Acceptance of Online Grocery Shopping Developing a Conceptual Model of the Acceptance of OGS. Online, 219–233.
[27]. Mayer, R. C., Davis, J., & Schoorman, F. (1995). An integrative model of organizational trust. The Academy of *Management Review, 20*(3), 709-734.
[28]. Bickmore, T., & Cassell, J. (2001). Relational agents: a model and implementation of building user trust. In Proceedings of the SIGCHI conference on *Human factors in computing systems* (pp. 396-403). *ACM*.
[29]. Kim, M. J., Chung, N., & Lee, C. K. (2011). The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea. *Tourism Management, 32*(2), 256-265.
[30]. Lee, M. K. O., & Turban, E. (2001). A Trust Model for *Consumer Internet Shopping, 6*(1), 75–91.
[31]. Lewicki, R. J., & Bunker, B. B. (1996). Developing and maintaining trust in work relationships. Trust in organizations: *Frontiers of theory and research, 114*, 139.
[32]. Kini, A., & Choobineh, J. (1998). Trust in electronic commerce: definition and theoretical considerations. In *Proceedings of the thirty-first Hawaii International conference on System sciences* (Vol. 4, pp. 51-61). IEEE.
[33]. Ajzen, I., & Fishbein, M. (1988). Theory of reasoned action/Theory of planned behaviour. University of South Florida, 2007, 67–98. Retrieved from http://www.infosihat.gov.my/infosihat/artikelHP/bahanrujukan/HE_DAN_TEORI/DOC/Theory of Reasoned Action.doc
[34]. Barki, H., & Hartwick, J. (1994). Measuring user participation, user involvement, and user attitude. MIS quarterly, 59-82.
[35]. Rogers, E. M. (1995). Diffusion of Innovations. Elements of Diffusion. https://doi.org/citeulike-article-id:126680
[36]. Hansen, T. (2008a). Consumer values, the theory of planned behaviour and online grocery shopping. *International Journal of Consumer Studies*.
[37]. Aaker, D. A., Kumar, V., & Day, G. S. (2008). Marketing research. John Wiley & Sons.
[38]. MacKenzie, S. B., & Lutz, R. J. (2006). An Empirical Examination of the Structural Antecedents of Attitude toward the Ad in an Advertising Pretesting Context. *Journal of Marketing, 53*(2), 48.
[39]. Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User Acceptance of Information Tech.: Toward a Unified View. MIS Quarterly, *53*(9), 1689-1699.
[40]. Antonides, G., & Raaij, W. F. van. (1999). Consumer behaviour: A European perspective. Wiley and Sons, (*1*), 642.
[41]. Engel, F. J., Kollat, T. D., & Blackwell, D. R. (1978). Consumer Behaviour. Hinsdale, III. : Dryden Press.
[42]. Horton, R. P., Buck, T., Waterson, P. E., & Clegg, C. W., 2001. Explaining intranet use with the technology acceptance model. *J. Inf. Technology*, *16*(4), 237-249.
[43]. Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010). Does the technology acceptance model predict actual use? A systematic literature review. *Inf. Softw. Technol., 52*(5), 463-479.
[44]. Crowley, S. L., & Fan, X. (1997). Structural equation modelling: Basic concepts and applications in personality assessment research. *Journal of Personality Assessment, 68*(3), 508-531.
[45]. Driediger, F., & Bhatiasevi, V. (2019). Online grocery shopping in Thailand: Consumer acceptance and usage behavior. *Journal of Retailing and Consumer Services*, *48*, 224-237
[46]. Redseer (2018). Retrieved from https://redseer.com/reports/the-rise-of-us-50-billion-e-baazar/
[47]. Johnston, R. B. & Gregor, S. (2000) A Structuration-Like Theory of Industry-Level Activity for Understanding the Adoption of Interorganisational Systems, The *8th European Conference on Information Systems, Vienna, Austria*, 567-574.
[48]. Kurnia, S., & Johnston, R. B. (2000). The Need for a Processual View of Inter-Organizational Systems Adoption, Journal of Strategic Information Systems, 9, 295-319. 4th *Pacific Asia Conferences in Information Systems, Hong Kong, China*, CD ROM.

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